

*contd*  
least one of the light accumulation time and [or] the sensitivity of said photoelectric conversion means.

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REMARKS

In view of the foregoing amendments and the following remarks, reconsideration and allowance of the above-referenced application respectfully are requested.

Claims 1-12 are pending in the application with Claims 1 and 9 being independent. Claims 1-12 have been amended.

In the outstanding Official Action, the Examiner requested correction of any errors in the specification of which Applicant becomes aware. In this regard, the specification has been amended to effect formal changes pertaining to idiom, syntax, grammar, typographical errors, and the like. No new matter has been added.

The Examiner also required that a new title of the invention be provided. The title has been amended and is clearly indicative of the invention as claimed.

Claims 4-6 and 9-12 were rejected under 35 U.S.C. § 112, first paragraph. Applicant generally directs the Examiner's attention to page 4, line 6, through page 5, line 25, and pages 25 through 31 for examples of support for these claims. More specifically, as an example of support for the claimed feature of correction by correction means, Applicant directs the Examiner's attention to page 25, lines 16-21 of

the specification. In particular reference to Claim 4, Applicant directs the Examiner's attention to page 26, lines 17-21 as an example of support for the claimed features of changing the sensitivity of the photoelectric conversion means. In particular reference to Claim 5, Applicant directs the Examiner's attention to page 25; page 26, lines 21-27; and Figure 7 as examples for support of the claimed features of correction by the correction means by a filter. In particular reference to Claim 6, Applicant directs the Examiner's attention to page 27, lines 1-6, and Figures 8 and 9, as examples of support for the claimed features of correction by the correction means by another material element. In particular reference to Claim 9, Applicant directs the Examiner's attention to page 29, lines 11-14; page 31, lines 10-14; and Figures 11-13 as examples of support for the claimed features of exposure adjustment means for adjusting the light accumulation time and the sensitivity of the photoelectric conversion means. Based on these examples of support for the claimed features, Applicant respectfully requests that the rejection under § 112, first paragraph, be withdrawn.

The drawings were objected to under 37 CFR § 1.83(a). With regard to means for changing the sensitivity of the photoelectric conversion means, Applicant directs the Examiner's attention to the item depicted by reference numeral 21 in Figures 1, 2, and 9 as well as the relevant

text at pages 26 and 27 of the specification. With regard to a filter and another material element for correction by the correction means, Applicant directs the Examiner's attention, respectively, to the items depicted by reference numerals 16 and 17 in Figure 9. With regard to exposure amount adjustment means for adjusting at least one of a light accumulation time and a sensitivity of a photoelectric conversion means, Applicant directs the Examiner's attention to the item depicted by reference numeral 27 in Figures 2 and 12 and the relevant text at page 31 of the specification. Applicant thus submits that each of these claimed features of the invention is depicted in the drawings and respectfully requests that the objection to the drawings be withdrawn.

In further reference to the drawings, a separate Request for Approval to Amend Drawings accompanies this Amendment and seeks approval to effect formal changes to several of the Figures. The Examiner's attention is directed to that document for the details thereof.

Claims 1-4, 7, and 8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,047,847 (Toda et al.). Claims 9-12 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,984,088 (Tani et al.). Claims 5 and 6 stand rejected under 35 U.S.C. § 103 as being unpatentable over Tani et al. in view of U.S. Patent No. 4,806,776 (Kley). For the reasons set forth below, these rejections respectfully are traversed.

Applicant's invention generally relates to a video camera that uses photoelectric conversion means to convert an object image sensed by a photographing optical system into an electrical signal. Conventional devices of this type use a mechanical iris to adjust the aperture size of the photographing optical system. Material elements have been proposed to replace the mechanical iris unit in an effort to reduce the size of the camera. One problem associated with these material elements is wavelength dependency of the transmission factor of the material element.

Applicant's invention is directed to solving problems of this type and does so, as recited in Claim 1, by providing a video camera that includes a material element, arranged in a photographing optical system, for controlling a material characteristic of the material element to affect at least one of a light transmission factor and a light transmission amount. Also included are photoelectric conversion means for receiving an optical image transmitted through the material element at a position of an imaging plane and for converting the optical image into an electrical image signal, and correction means for correcting a light transmission factor wavelength dependency of the material element in accordance with at least one of light transmission factor characteristics and light transmission amount characteristics of the material element.

As recited in Claim 9, the present invention relates to a video camera including a material element and photoelectric conversion means having similar features to those recited above in reference to Claim 1. The photoelectric conversion means are further recited to be capable of adjusting at least one of a light accumulation time and a sensitivity. The video camera further includes exposure amount adjustment means for adjusting at least one of the light transmission factor and the light transmission amount of the material element, and at least one of the light accumulation time and the sensitivity of the photoelectric conversion means. Applicant submits that the cited documents, whether taken alone or in combination, fail to disclose or suggest at least the above-described features.

Toda et al. generally relates to an image forming optical system that includes a liquid crystal iris. As shown in Figure 44, an aperture of the iris is changed by controlling a voltage applied to ring electrodes 412a, 412b, and 412c. In addition, an output of a photosensor 413 is applied to an iris value determining circuit 426 to determine the iris value and to drive a liquid crystal iris driving circuit 428. The iris value determining circuit 426 also outputs a color correction signal to a white balance correcting circuit 427. This color correction signal corrects spectral transmittivity variation caused by change of the aperture of the liquid crystal iris. Applicant

respectfully submits, however, that Toda et al. neither discloses nor suggests a video camera having a material element, arranged in a photographing optical system, for controlling a material characteristic of the material element to affect at least one of a light transmission factor and a light transmission amount and correction means for correcting a light transmission factor wavelength dependency of the material element in accordance with at least one of light transmission factor characteristics and light transmission amount characteristics of the material element, as recited in Claim 1.

Tani et al. generally relates to an exposure controlling apparatus for an electronic still camera. The apparatus of Tani et al. controls the aperture of a diaphragm 12 based on an output of an external photometry circuit comprising a photometric device 18 and a photometric circuit 30, and a calculation result of a microcomputer 20 that performs the calculation operation of an output of an integration circuit 42 that integrates an image signal from an image sensor. Applicant respectfully submits, however, that Tani et al. fails to disclose or suggest a video camera having a material element, arranged in a photographing optical system, for controlling a material characteristic of the material element to affect at least one of a light transmission factor and a light transmission amount and exposure amount adjustment means for adjusting at least one

of the light transmission factor and the light transmission amount of the material element, and at least one of the light accumulation time and the sensitivity of a photoelectric conversion means, as recited in Claim 9.


Kley was cited as allegedly teaching use of a filter for the control of light transmission to achieve white light. Applicant submits that Kley does not remedy the above-described deficiencies of the primary references.

For at least the above-described reasons, Applicant respectfully submits that independent Claims 1 and 9 are allowable over the cited documents. Claims 2-8 and 10-12 depend from independent Claims 1 and 9, respectively, and are believed allowable for the same reasons. Moreover, each of these dependent claims recites additional features in combination with the features of its respective base claim and is believed allowable in its own right. Individual consideration of the dependent claims respectfully is requested.

Applicant believes that the present Amendment is responsive to each of the points raised in the Official Action and submits that the present application is in allowable form. Favorable consideration of the claims and passage to issue of the present application at the Examiner's earliest convenience earnestly are solicited.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 347-8100. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

  
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